



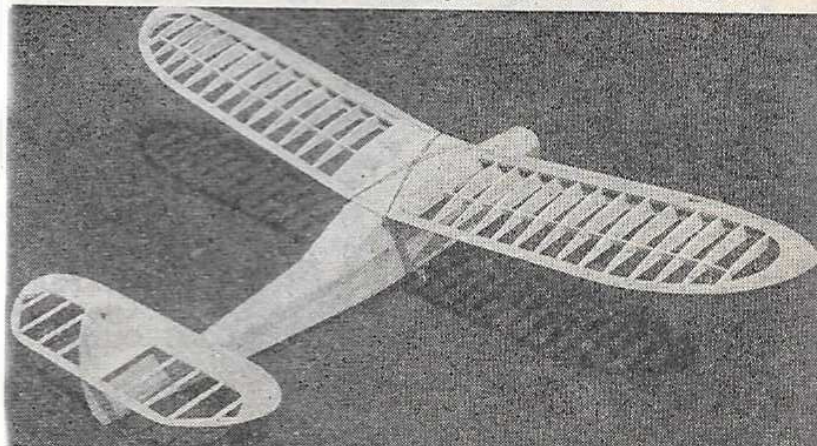


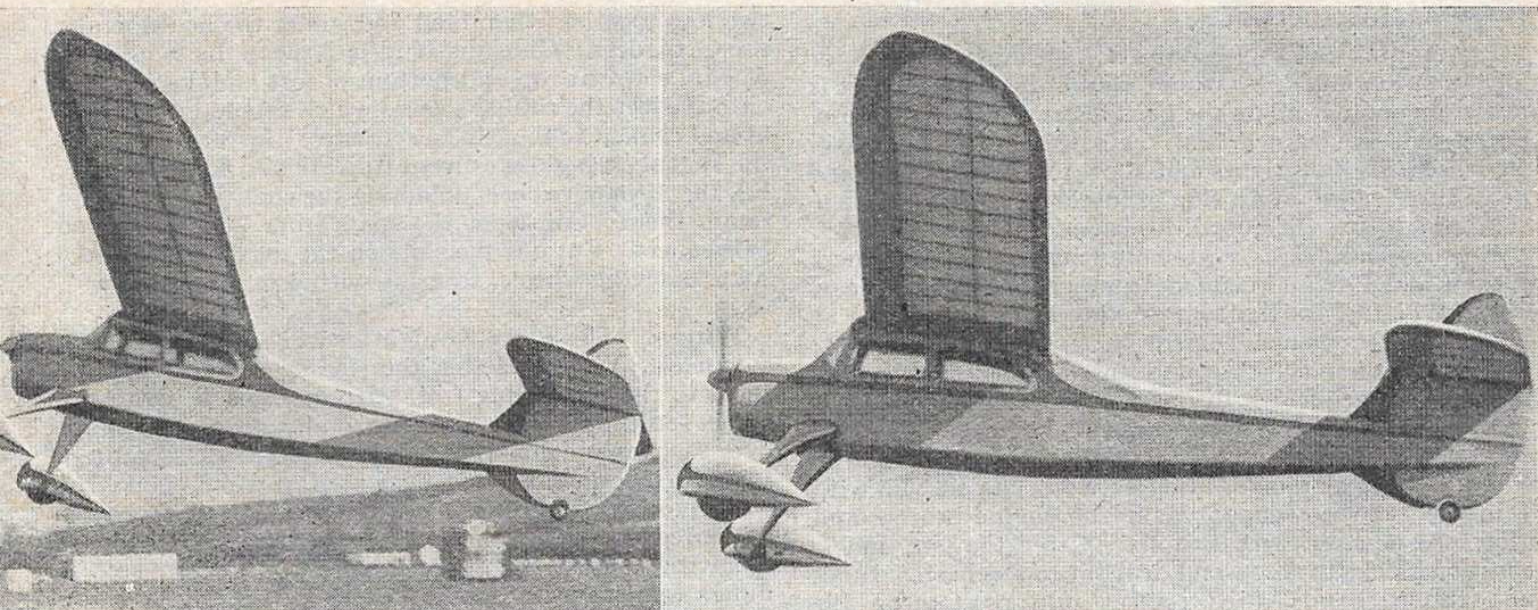
DESIGNED BY
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THIS is a model which was built to a specification for a definite purpose and which has completely fulfilled the expectations of the designer. The design was made out to obtain a large power model for pleasure flying, consistent in performance, elegant in appearance, and rugged but simple in construction, which would look and fly like a full-size aircraft.

The fuselage construction is of balsa sheet over a former and longeron framework, which gives amazing strength with lightness. The all-up weight of this 7-ft. span model is only 3½ lbs. ! The engine cowling is neat and effective, specially designed to make the engine fully accessible for starting. The model was primarily designed for the now famous Sparey 5 c.c. diesel, and this has proved an ideal combination, although the performance was no less sparkling with the alternative

Left to right: Eros semi-finished, uncovered.





Eros and designer on left. Above, the model in full flight at Eaton Bray.

Micron 5 c.c. installation. Consistent flying has also been obtained with a Kemp 4.4 c.c. The undercarriage is strong and springy and is responsible for one of the most astonishing characteristics of the machine—its unbreakable habit of making a faultless three-point landing on almost any surface, not to mention taking-off!

This feature of the undercarriage combines with the flat gliding angle, stout construction throughout and powerful anti-stall flat plate tailplane to provide as near a crashproof model as it is possible to make. On one occasion the machine inopportunely crossed the slipstream of a full-size aircraft taking off. The blast swung it right in a sideslip, although it did not spin, but the damage was confined to a broken prop, engine plate and centre section. As the engine plate is designed to give in a crash and the model went in under power, the damage was amazingly superficial.

The design of most of the components is a sound correlation between practice and modern theory. The wing chord being 12 inches, the model was reckoned to fly at super-critical conditions, and therefore a normal aerofoil was used instead of a laminar flow section, the choice going to old favourite Clark Y. The tailplane is mounted at a medium-high position out of the downwash of the wing and in the best compromise between structural strength and anti-spin efficiency. Here it may be as well to point out that the model has never yet been persuaded to spin on any of the seventy or eighty flights it has made to date. The flat plate section was deliberately chosen in accord with up-to-date theoretical

trends as the most effective anti-stall section. Fin area is on the generous size, which has resulted in a weathercock stability that kites the machine up on every available breath of wind—the model soars like a sailplane when on the glide.

Stability all round is excellent, and the very low dihedral fitted has always proved quite adequate for all conditions, despite the mutterings of the pundits. The general excellence of the flying characteristics of Eros have been amply proved in all weathers.

Constructionally, Eros is simple but sound. The wings follow normal sheet-covered practice, with solid ribs and capping strips. Their shear-pin and tongue and box attachment is worthy of note. This is the answer to all the loose tongue trouble that so many modellers wail about, and a fairly obvious answer, too. It makes an infallible fixing that has worked without fail in all the knocks that the machine has received.

For the newcomer to power modelling this model is as good as any—for the experienced model flier it is a delight. Care in building, as in any model, plays a considerable part in results obtained, but the machine is so docile that there is considerable latitude in adjustment without the fear that the first and last flight will be interesting to watch. Incidentally, the spats have confounded all the endless critics of these decorations. They have no effect on the landing or take-off, even in grass—part of the secret of this being the gap at the rear to prevent the grass blades entangling the wheel.

The cowling, showing hole for airdraulic timer. Two views of the battered prototype after some seventy test flights



Building Instructions.

Fuselage. Select 2 lengths of $\frac{1}{4}$ sq. medium balsa for longerons and pin down to side view of fuselage. There is rather an acute bend on the bottom longeron at the nose, but if this is steamed first there will be no difficulty. Next, cement in uprights and allow to set. Repeat same procedure for the other side of fuselage. While fuselage sides are drying cut out all fuselage formers.

Remove fuselage sides from drawing, cement in formers F3, F4 and F4a and cement together longerons at rear. Cement in top and bottom decking formers starting at F5 and F11. Then cement in Former F1 and F2; rubber bands placed around fuselage sides will hold formers in place whilst drying.

Next cement in the two cross struts between F3 and F4 and the two semi-longerons at the top of the cabin. Plank the top sloping decking between F4a and F5 with $\frac{1}{4}$ in. by $1/16$ in. strips. Make the engine bearers and glue into position with Durofix. Carve the two under-carriage blocks to shape and drill out to receive u/c tubes and rubber bands, then cement into position in the fuselage.

Stitch and glue in to position on the top longerons at the nose, the four female half press studs to take the removable top engine cowling and the four male half press studs at the nose to take the bottom half of the removable nose block. See sketch. Next cement in the $\frac{1}{4}$ in. sheeting at the nose.

Make the nose block, cut in two at the thrust line. Stitch and glue into position the four female half press studs to the bottom half of the nose block and press nose block into position on the fuselage. To the top half of the nose block and F1a glue two pieces of $\frac{1}{4}$ in. sq. hard balsa. Lay it into position on the nose of the fuselage, mark position of each press stud, stitch and glue into position the four male half press studs, then complete the removable engine cowling by planking with $\frac{1}{2}$ in. by $1/16$ in. balsa strips.

Cement to the top of the cabin the $1/8$ th in. sheet. See sketch. Cement in the two dowels to take the wing retaining bands, also the two uprights and the two diagonal pieces between the cabin window frames. Cement in a piece of block balsa between nose block and F1 and carve to shape of the fuselage, then completely plank the rest of the fuselage with $1/16$ in. sheet and sand smooth. Cut out and cement in place the front and side cabin windows.

Under Fin. Cut to shape two pieces of $\frac{1}{4}$ in. sheet and laminate together. Insert the rear wheel on to a length of 18 S.W.G. wire and bend to shape. Cut out a piece at the bottom of underfin and bind and cement in place the axle, then cement back the small piece. Sand smooth and cement underfin to fuselage.

Top Fin. The fin is made in two halves from $\frac{1}{4}$ -in. sheet. Cut out and cement into the top half ribs R1 and R2. Glue in the paper tubes to take the $\frac{1}{4}$ in. and $3/16$ in. dowels. Insert and cement in place the two wire hooks at leading and trailing edge. Attach the trim tab with two pieces of thin aluminium. Proceed in the same manner for the bottom half of fin. When completed, completely cover the whole of the fin with $1/32$ in. sheet. Cut out the $1/16$ th ply tailplane seating, and cement to R3. Then cement the bottom half of fin to fuselage and fair off with plastic wood.

Undercarriage. Form to shape from 10 S.W.G. wire, bind with fuse wire and solder the bottom of each

two legs together, then bind and solder the hooks at the top of the legs. Glue and bind into place the two pieces of $\frac{1}{8}$ in. sheet at top and bottom of legs. Make and slip onto the legs the rubber sleeves which should be a stretch fit and cement to the $\frac{1}{8}$ in. sheet with "Bostik". Cut out the spat securing plates from tinplate and solder to legs. Fix the $3\frac{1}{2}$ in. airwheels, soldering the ends of the axles to retain them. Construct the spats from $\frac{1}{4}$ in. laminated balsa sheet. Cut out the slots on the inside and slip the spats over the wheels, securing with $\frac{1}{2}$ in. wood screws.

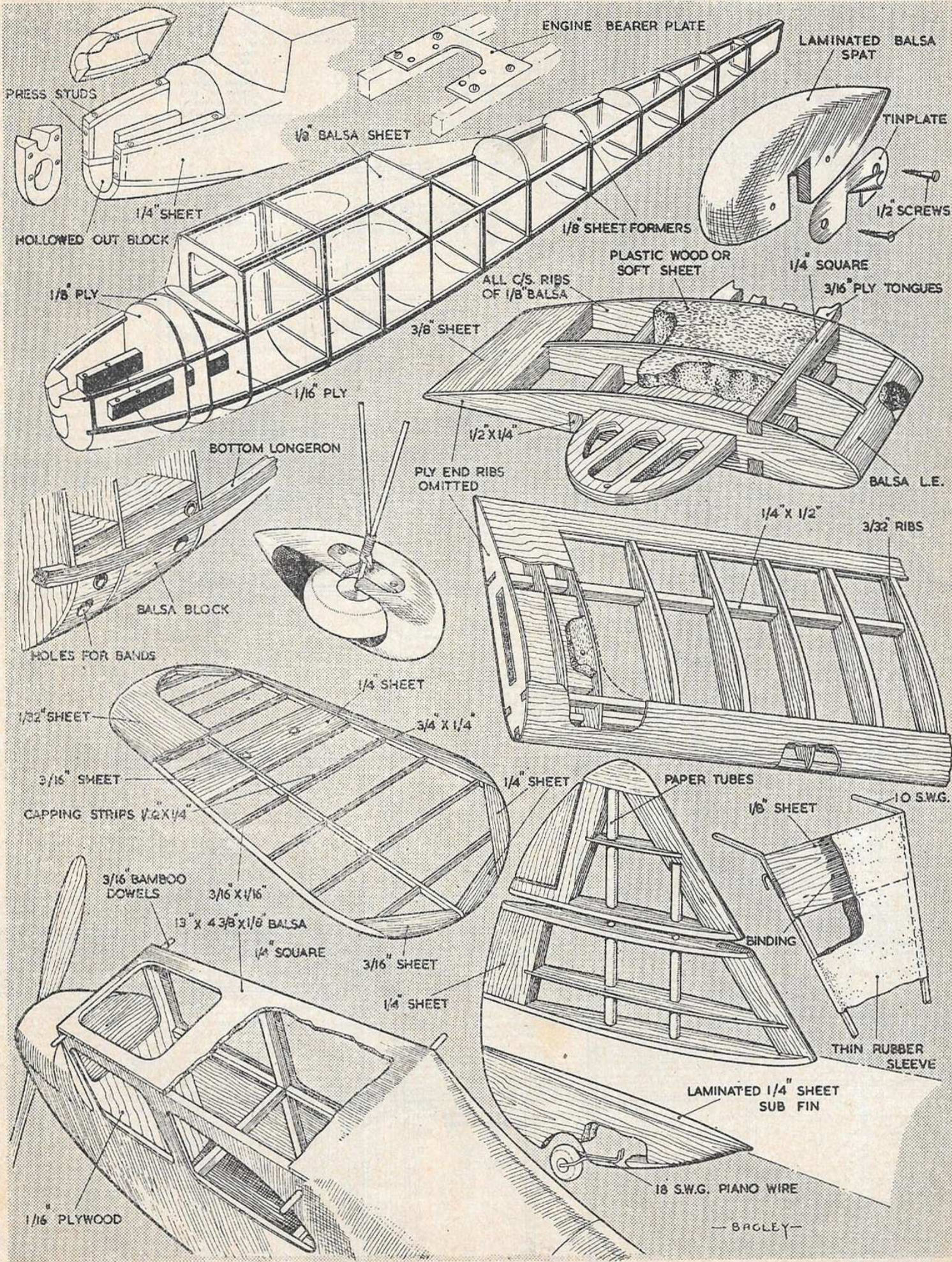
Wings. These are straightforward and need little comment. When sheeting the leading edge cement the sheet to the protruding L.E. strip first and leave to set. When set, the sheeting can be carefully steamed to shape over the ribs and glued. The wing tip is made separately for easy sheeting and then cemented to wing. Make the wing box from $3/16$ th sheet and strip. When box is cemented in wing fill the space on the top and bottom of box with plastic wood or block balsa. The centre section differs from wing in that it has a large solid L.E. and a solid T.E. When cementing in place the tongue, use the same procedure as for the wing filling above and below with plastic wood or block balsa. When completed assemble the wings and drill the $\frac{1}{8}$ in. dia. holes right through wing, tongue and box to take the $\frac{1}{8}$ in. sq. balsa shear pins.

Tailplane. This is a flat section of quite orthodox construction.

Covering and Doping. The wings and tailplane were originally covered with "Silkspan" paper, and the wings given three coats of full strength glider dope, the tail two. Colour scheme was as on cover. If Silkspan or silk are not obtainable double cover with rag tissue or similar tough material. The fuselage and fin are covered with rag tissue doped straight onto the sheeting with three coats of clear dope, followed with several coats of coloured dope, sanding in between each coat to give the required finish.

Flying. Install the engine with about three degrees right thrust and set the trim tab $\frac{1}{2}$ in. to the left. When the model is assembled it should balance at the first upright of the cabin. The weight should only be around $3\frac{1}{2}$ lbs. Point the model into wind and hand launch gently but firmly with nose slightly down. If model is balanced correctly it should glide for about forty feet before touching down. If model stalls move the wing back a little. If model dives move wing forward a little. Continue hand launching until model glides just below the stall. After satisfactorily adjusted fill up the tank, set timer for five seconds, start up, place model into wind, and let it take off under its own power. The model should just unstick and start to turn left before the engine cuts. Increase the engine run to 15 seconds. The model should take off and climb to the left in about 150 feet diameter circles. If the model tends to stall during the power run give the engine a little down thrust. This should not, however, be necessary. Do not be afraid to give more left rudder as the original shows no tendency to spin. After all tests give 25-30 seconds and start running!

There you have Eros, and if you can find a better power model for 1948 we'll congratulate you!



— BAGLEY —